



Directorate of  
Intelligence

**Top Secret**

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# **Science and Weapons Daily Review**

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The USSR has reached an agreement with the United States to purchase in 1986 50 million dollars worth of a herbicide for use in grain and sugar beet fields. This herbicide can treat up to 12 million of the 39 million hectares of grain and sugar beets allocated to the Soviet intensive technology program.

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USSR: NUCLEAR MATERIALS FREEZE MAY BE PROPOSED

A number of factors suggest that the Soviets may attempt to revive the concept of a mutual US-Soviet freeze on the production of highly enriched uranium (HEU) and weapons-grade plutonium. The Soviets have nine to 13 nuclear reactors producing plutonium for their nuclear weapons program. These reactors are aging--the oldest is 37 years old and the newest is 21 years old. Most, if not all, of the reactors use graphite, which has a finite life in the reactor because of radiation-induced damage. If the Soviets do not repair or replace the graphite, they probably will have to shut down their oldest production reactors in the not-too-distant future. Repairing or replacing the graphite would entail a lengthy shutdown of the reactors, [redacted] Building new reactors would be expensive at a time when General Secretary Gorbachev is planning to improve domestic economic growth. [redacted]

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In contrast to the plutonium production reactors, the Soviet HEU facilities are modern and could operate for many years. The Soviets are producing HEU for both warheads and naval reactors. The United States is producing HEU for naval reactors; it has not produced HEU for warheads since 1965 but plans to restart in 1986. [redacted]

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Comment:

We believe that the Soviets may propose a mutual cessation in production of HEU and weapons-grade plutonium at the Geneva Arms Control Talks. The Soviets informally proposed such a nuclear materials freeze during the Khruschev era and they may believe it to be in their interest to revive the concept now. It would build on the publicity surrounding their earlier arms control proposals by appealing strongly to antinuclear factions and moderates in the United States and Western Europe, thus aiding the Soviet effort to halt the US Strategic Defense Initiative and slow the US strategic modernization program. Such a treaty would save the Soviets the cost of building new nuclear reactors for production of weapons-grade plutonium and would force the United States to stop production in five currently operating reactors, one of which was refurbished recently. [redacted]

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We estimate that the Soviets have produced more HEU and plutonium to date for warheads than has the United States, giving the Soviets slightly more flexibility in developing their future nuclear forces. Furthermore, because of the deep force reductions proposed in Geneva, the new Soviet leadership may believe that further nuclear force expansion is unnecessary.

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Verifying Soviet compliance with such a treaty would be very difficult. For weapons-grade plutonium, US engineers would have to conduct comprehensive onsite inspections of reactors and reprocessing plants. Verifying a Soviet halt in HEU production would be almost impossible, even with onsite inspections, as both nations would insist on continuing production of HEU for naval reactors. We could not determine if extra HEU were being produced for warheads.

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USSR: MASSIVE HERBICIDE PURCHASE

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The USSR recently reached an agreement to purchase 50 million dollars worth (714 metric tons) of a potent herbicide from a US agrochemical company in 1986 for use in grain and sugar beet fields. This chemical can be mixed with Soviet herbicides--in a ratio of 1 to 5--to increase weed control. These herbicides have proven very successful in controlling weeds that are resistant to repeated applications of the traditional Soviet chemicals. In addition, the Soviets are negotiating with the United States for a turnkey production plant to be completed in five to six years, which could produce up to 1,400 metric tons of this chemical per year.

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Comment:

The Soviets are expanding the amount of farmland devoted to "intensive technology," a farming practice that calls for using high-yield varieties, applying proper doses of fertilizers and pesticides, and observing optimal field work deadlines to try and boost agricultural yields. The 714 metric tons of herbicide ordered from the United States, a 700-percent increase in just two years, can be used in 1986 to treat up to 12 million of the 39 million hectares allocated to the intensive technology program in grain and sugar beets. Preliminary Soviet reports indicate that in 1985 some intensively cultivated fields yielded as much as 150 to 200 percent more grain than traditionally cultivated fields.

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